A proof of Sumner's universal tournament conjecture for large n

Richard Mycroft

A tournament is an orientation of a complete graph. Sumner conjectured in 1971 that any tournament G on $2n-2$ vertices contains any directed tree T on n vertices. Taking G to be a regular tournament on $2n-3$ vertices and T to be an outstar shows that this conjecture, if true, is best possible. Many partial results have been obtained towards this conjecture.

In this talk I shall outline how a randomised embedding algorithm can be used to prove an approximate version of Sumner's conjecture, by first proving a stronger result for the case when T has bounded maximum degree. Furthermore, I will briefly sketch how by considering the extremal cases of this proof we may deduce that Sumner's conjecture holds for all sufficiently large n.

This is joint work with Daniela Kühn and Deryk Osthus.